# Online Clothing Repair Designing for Transparency & Trust

## Södertörn University × Memoc

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## Abstract

In this project report the design team introduces a project in collaboration with the online clothing repair start-up memoa, including designing the home and service pages for the mobile-optimised website with different methods as well as analysing the data and recommendations for future research and development. The project explores different ways to design transparency and trust in a service that moves from a physical to an online interaction.

In this report, we start with a project introduction that follows with a project overview. The team begins the design process with a literature review on related research to gather empirical data about consumer motivation for clothing repair, barriers to clothing repair, transparency, and trust to create an interview guide for the semi-structured interviews. We used a thematic analysis to analyse the data from the semi-structured interviews and developed personas and user journey maps to visualise the collected data. After that, we performed a modified User Experience (UX) competitive analysis to get inspiration from and compare direct and indirect competitors to the service of memoa.

From the knowledge of research, best practices and the data we analysed, we started creating a prototype. The stakeholders were included in two co-design sessions during the first and second iterations. Between the second and final iterations, we conducted two usability tests to grasp additional perspectives and nuances of the prototype to enable us to reiterate the design for improved UX regarding transparency and trust. We delivered the finalised prototype to the stakeholder with written recommendations for future research and development of the platform.

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## 1 Introduction

The fashion industry of today is notorious for its environmental impact, with fast fashion being a pivotal contributor. Today's culture, which relies on quick and cheap production, has changed how people relate to clothing, leading consumers to view fashion as a novelty where they buy more clothes than ever while wearing them fewer times (Page, 2014). The current rate of fast fashion consumption is leading towards a 60% increase in post-consumer textile waste up until 2030, equivalent to 33 pounds per person (Cobbing & Vicaire, 2016). As a result, there has been a growing interest in repairing and extending the life cycle of textiles to reduce waste and promote sustainability.

memoa is a startup company focusing on environmental sustainability when repairing and reusing clothing in a society where sustainable practices are becoming more critical than ever. Their vision includes serving the rising recycling market and reusing clothing by providing a sustainable way to extend their life cycle conveniently and affordably. Their goal is to create an online service that will facilitate the same interaction as going to a physical repair shop without leaving the comfort of your home. The user describes their damaged garment with text and photos via memoa's to-be-developed web interface. memoa then assesses the user input and estimates a price and the duration of the repair based on this. Finally, the user sends their garment to memoa and receives it back after repair.

## **Research Objective**

This project aims to obtain additional perspectives to develop a prototype application for memoa. It is based on empirical data from the qualitative research methods of semi-structured interviews, a UX competitive analysis, two co-design sessions and usability tests. Additionally, the research aims to investigate what could motivate and even demotivate the intended user group to use an online clothing repair service such as memoa's to-be-developed service.

The target group for the research was appointed to the design team by the stakeholder and focuses on the age group of 20-40 years. The targeted users value style, brand clothing and high quality when buying clothing and are at the same time aware of the impact that fashion has on the environment. They are willing to pay a certain price to have damaged garments repaired and thus be able to wear them longer.

During the empirical data collection, it was determined that transparency and trust are the foundations that need to be addressed to shift the interaction of repairing clothing from a physical to an online service. With that in mind, the main goal of this project would be to design each function of the prototype with a distinct perspective on transparency, which in itself would lead to increasing the users trust of the service.

### **Project Execution**

The team consists of four designers working with the stakeholders. The team members were assigned different primary responsibilities in the project to delegate the workload and create a workflow that resembles an actual design practice (see Table 1). The primary responsibilities were divided based on previous experience and preferences. Each team member's responsibility does not mean that the team member only worked on that specific part of the

project - everyone was involved in each part. To involve the stakeholders as much as possible in the process, we aimed to have a check-in meeting once per week and complement that with additional meetings when necessary.

Name	Responsibility	Includes
Matilda Borglund	Prototype Design	Create Figma infrastructure and design guide
Vivien Geschwind	Prototype Design	Create Figma infrastructure and design guide
Josef Marklund	User Research Lead	Recruiting participants, leading interviews and testing sessions
Julius Sellgren	Report Lead	Project report structure

Table 1. Role distribution

## **2 Project Overview**

## Project Plan

We planned the project with the help of a Gantt chart, first determining what measures and methods we would have to complete followed by discussing how long each segment would take (see Figure 1). As we created the plan at the very beginning of the project, we were aware that it could change and need to be revised during the course of the project. At the end of the project, we simplified the Gantt chart to make it more easily readable, knowing what had been done and when we actually had done it.



Figure 1. Project Plan

## Kick-off Meeting

The project was initiated with a kick-off meeting with the stakeholder. They gave us insights into the vision and idea of memoa and their expectations for this collaboration. It quickly became apparent that the parts of the platform we were about to design were quite open ended and we needed to find a reasonable methodology to empathise with the intended user group and to understand what was important for the service to have.

## Semi-Structured Interviews

Before conducting the semi-structured interviews, we had to understand the field of interest, which was done by exploring related research. After exploring related research, an interview guide was formulated and constructed in a format based on the designers' previous experience with conducting semi-structured interviews. A total of five participants were recruited within the age range of 23 to 29. We analysed the data using thematic analysis, which concluded that transparency and trust are two essential foundations on which we should focus our design.

## Modified UX Competitive Analysis

During this part of the design process, we compared direct and indirect competitors to the to-be-developed prototype to understand what the market has already done and their design choices in different scenarios.

## **Co-Design Sessions**

We had two co-design sessions; the first was to explore and discover with our stakeholder. Before the initial co-design session, we had ideas for the content of each page that was planned to be designed, but we needed to review it with him first to understand if we missed or misunderstood something. The second co-design session was after we had constructed a medium-fidelity prototype. We had our stakeholders review it to get feedback and further input before testing the prototype with real users in a usability test.

## **Prototyping and Usability Testing**

We created a high-fidelity prototype using the findings of the semi-structured interviews, modified UX competitive analysis and the two co-design sessions. We conducted a usability test on the interactive prototype with two participants using a *think aloud* method to understand how user-friendly the prototype is and if the users would trust the service for repairing their garments. We analysed the data from the usability test through an *affinity diagram*. With those insights, we could refine and add styling to the prototype that provides a satisfactory user flow and experience. However, the technical requirements of the prototype are not programmed in this project.

### Report

This executive report summarises the results from our semi-structured interviews, modified UX competitive analysis, co-design sessions and usability tests. It shows our in-depth analysis, including mobile-optimised home and service pages in the form of a high-fidelity prototype.

## **3 Literature Review**

After having the initial meeting with the stakeholder, we researched relevant literature to gain insights which could assist us in our user research and prototyping. We found three themes that were particularly interesting to us: Consumer Motivation for Clothing Repair; Barriers to Clothing Repair; and lastly, the theme of Transparency and Trust.

## **Consumer Motivation for Clothing Repair**

#### - Emotional Connection and Product Attachment

This project aims to build part of a website for the clothing repair service memoa. We looked into different factors which motivate consumers to repair clothing. According to research on consumer motivation for clothing repair, emotional attachment to a product can significantly impact its lifespan. For instance, studies have shown that consumers who invest in high-quality garments are more inclined to use repair services to prolong the life of their precious items (Laitala et al., 2021). This emotional attachment stems from "product attachment," which refers to the passionate bond consumers form with a product (Schifferstein & Zwartkruis-Pelgrim, 2008). To build upon this emotional attachment, we as designers must empathise with the users and design with consideration of various themes that determine attachment to outcomes. This includes memories, pleasure, usability, transparency, and trust (Page, 2014). As we are designing a product, our primary objective will be to ensure reliability and usability, as these themes are crucial to our customers' emotional connection with the brand of memoa.

### **Barriers to Clothing Repair**

We also needed to investigate the barriers for customers to repair their clothing. Previous research suggests that many consumers have a deep emotional attachment to their favourite garments, making it difficult to part with these items or repair them without repatriation (McQueen et al., 2022; Laitala et al., 2021). It was also speculated by reading related literature that the perceived barrier could be increased if the consumer does not meet face-to-face with the tailor. Another barrier is that consumers with deep emotional attachment to a garment would be concerned about changes in appearance after the repair, ultimately leading to dissatisfaction and a shortened lifespan (McQueen et al., 2022; Laitala et al., 2021). The solution could be to design the service to communicate how the repair will occur and what will be changed. Unfortunately, it was observed that the fast fashion industry had perpetuated the perception that repairs are not worth the time, effort, or cost as many garments are produced from low-quality materials and sold at lower prices (McLaren & McLauchlan, 2015).

Despite these challenges, there is still a growing market for clothing repair services, highlighting a significant opportunity for a clothing repair service like memoa (McQueen et al., 2022). By providing accessible and affordable repair services and addressing the barriers to repair, memoa can help consumers to extend the life of their clothing and reduce the negative environmental impact of fast fashion. Moreover, repairing a beloved garment can fulfil emotional and vanity needs that consumers seek through new clothing purchases (Niinimäki & Armstrong, 2013). By promoting repair as a viable and rewarding option, memoa can build a loyal customer base and contribute to a more sustainable future.

### **Transparency and Trust**

In designing new technologies that enable new forms of interaction, as memoa would be, it is argued that trust, and the factors evolving around it, must be a core value of the development (Knowles et al., 2014). To engage these design challenges to enhance the trust and transparency of a new technological service, Knowles et al. (2014) propose an approach of *trustworthiness by design*, outlining several fundamental principles to follow. Out of these principles, we will focus on *Translucency*, which touches on the users being able to see all the relevant data that could assist them in the interaction of the service; *Value to users*, which is about the design of the service; the principle of *Empowerment* could be explained as a combination of the two previous principles where the users need to be brought into the loop by the service to engage them towards a shared goal and thereby generally increasing the perceived quality and ease of use; the last principle that we will focus on is the one of *Competence*, which is closely related to the previous direction in empowering the users by assuring that the users will succeed with each task that is included in the platform.

## **4** Semi-Structured Interviews

In this research, we used semi-structured interviews to explore individuals' measures when their garments are damaged and their motivation to use an online clothing repair service (*see Interview Guide*). After completing the interview guide, a pilot interview was performed to identify misleading and redundant questions and to revise the interview guide if needed. In addition, the pilot test allowed us to get a sense of the pace of the interview. We recruited a total of five participants (see Table 2) with high interest but varying levels of knowledge about fashion.

Participant	Occupation	Relevant demographics	Other relevant characteristics
P1	Student	Male, age 27	Swedish, Location: Sweden
P2	Student	Male, age 29	Swedish, Location: Sweden
Р3	Student	Female, age 23	Swedish, Location: Sweden
P4	Social Worker	Female, age 29	Swedish, Location: Sweden
P5	Student	Male, age 24	Swedish, Location: Sweden

Table 2. Interview participant information

During conduction, one team member led the interview while the rest of the design team took notes and could step in if the interviewer missed something essential. Complementing our notes, we recorded the interviews to facilitate data analysis afterwards. According to ethical research principles, the participants were asked for their consent and informed that they could withdraw from participation at any time. To identify the key findings of the interviews, we used a *thematic analysis* method.

### Key findings from the interviews Participant value: Transparency, Trust, and Communication

#### Transparency

To use an online repair service such as memoa, the participants expressed transparency throughout the service as an essential criterion. This starts with the tailors behind the service stating their qualifications and level of experience and showcasing previous repair work on the website to guarantee their competence. Furthermore, participants expressed the desire to receive an explanation of the repair process to increase their understanding of how their garment is treated. An estimate of the price and duration of the repair process, including delivery time, was also considered essential for the transparency of the service.

#### Trust

According to the participants, good experiences of previous customers with the service are the key factors for building trust in the service, with credibility being higher when the service is recommended directly by friends. However, influencers could also fulfil this role if the customer has a certain connection to them. If they have tried the service themselves

beforehand, the participants feel more confident about handing in the garment for complicated repairs or garments with emotional attachments. The participants expressed that they need to feel that the service is proficient and invested in improving itself. In addition to peer-to-peer recommendations, an acknowledged certification of tailors can also provide an initial basis of trust. Ultimately, the service's openness to criticism regarding feedback could increase trust and authenticity.

#### Communication

To achieve perceived transparency and trust, one of the main foundations is the service's communication. The important factors include the communication's effectiveness and the human connection provided. The participants expressed the need for more details about the repair process, including the necessary steps to repair the garment and a description of the final result. The price-performance is also a factor that needs to be communicated explicitly beforehand. However, the participants show a perceived awareness of the difficulty in being clear about the price when it comes to specifically repairing because of how different each damaged garment could be.

#### Emotional attachment's impact on the perceived value of a garment

According to the participants, emotional attachments play a crucial role in the perceived value of a garment and the likelihood of it being repaired. The participants expressed that the sentimental value of a garment influences their decision to repair it, regardless of its cost or financial value. The participants noted that they would be more careful with repairing garments that hold sentimental value, leading them to investigate what tailor to use more thoroughly. The participants expressed that if they have had a bad experience with tailors, it would negatively impact their willingness to repair garments. If the garment had sentimental value and was received from someone important to them, the participants expressed that they would repair it regardless of the financial value of the garment.

#### Participant knowledge of clothing repair

The empirical data shows that the participants have a relatively good understanding of clothing repair, either when it comes to repairing smaller damages by themselves or what a paid service could achieve when it comes to bigger damages. They explained a general understanding of clothing materials and how easy or difficult it would be to repair them. Based on that knowledge, the participants expressed if it would be worth repairing or discarding the garment. The discarding of the garments could include leaving them in the closet, mainly if it was an object of sentimental value, throwing it away or giving it to a person they know or a second-hand shop. When it comes to repairing or mending garments for themselves, it is mainly about sewing up pants to get a better fit and mending small holes. This could even include buying relatively damaged second-hand clothes to repair themselves or giving them to a professional.

#### **Customer Feedback**

One of the basic requirements for memoa's web service is an interface through which customers can give feedback on the services they received. However, participants indicated they are more likely to give feedback when receiving poor service. According to the participants, a direct prompt with a simple and intuitive interface could increase the motivation

to give feedback about good service. While text fields have a deterrent effect, buttons, ratings and range sliders are perceived as easier and more convenient to give feedback. Participants also highlighted that a feedback form should contain only a few questions but can be completed with just a few clicks and within a minute. Ultimately, incentives such as discounts on the next order could motivate participants to give feedback, with a higher success rate if they are confident they will use the service again in the foreseeable future.

#### **Sustainability**

The empirical data suggests that the participants focus on sustainability in their daily lives, mainly clothing. The participants aim to buy less and better quality garments, take care of their waste, repair clothes, and buy second-hand. However, it was observed that all participants thought it was too easy to return goods and felt that they were incentivised to buy more than needed. Some participants struggle with impulsive buying and try to make conscious decisions. A variation of the importance of sustainability varied among the participants, with some prioritising it more than others. It was also observed that some participants felt that shipping clothes is a problem, especially if the clothing needs to be sent back and forth between the customer and the factory or repair facility. Most participants expressed that they would repair, defined by them, "easier and smaller" damage by themselves and want to utilise a tailor or an online clothing repair service for more extensive and more complicated repairs.

## **5 Interview Data Visualisation**

### Personas

Following the data analysis, we visualised the key findings from the user interviews conducted in the form of personas. All interview participants were fashion savvy but had varying levels of knowledge about fashion, fabrics and the related processes, concluding different needs of users when it comes to letting their garments be repaired. Therefore, we created two personas, both of which could represent potential users of memoa.



Figure 2. Persona - Billie (see in Figma)

Billie is a 21-year-old student in Gothenburg who is well-versed in fashion and fabrics (see Figure 2). She knows that the processes in the fashion industry have an immense impact on the environment, so when she buys her clothes, she already makes sure that they last a long time or can be maintained through good care and repair measures. Her knowledge of fabrics makes her highly value competency and transparency about the process when using a repair service like memoa. She wants to know what techniques the tailors use in the repair process and how this affects her garments.



Figure 3. Persona - Lou (see in Figma)

Lou is a 25-year-old university graduate living in Stockholm who likes dressing up (see Figure 3). He follows a particular style and gets easily attached to his garments, especially if they are expensive or have a specific meaning to him. He wants to preserve his favourite clothes as long as possible and instead goes to a tailor for complicated fixes that he cannot do himself. However, Lou must ensure his beloved garments are in good hands. What counts for him is that the result meets his expectations and his garments are repaired at a reasonable price that he knows beforehand.

### User journey map

Based on the personas created, the design team visualised two user journey maps on the process of the personas Billie and Lou finding that a garment is damaged, turning it in to be repaired by a tailor and receiving it back. In the user journey maps, we focus on highlighting the current challenges with physical repair services such as tailors. We utilised the colour red to indicate pain points and the colour green to indicate gain.

#### User Journey Map - Billie

Billie's journey map consists of five steps (see Figure 4), where the graph of her feelings moves from being very low to hoping that both the garment will be repaired and that she will learn something about her discussion with the tailor. She gets frustrated about the language barrier between the store clerk and herself, and she loses her trust, decides to leave the store and unfortunately gives up on repairing the garment. The design team observed many potential opportunities in this journey map, such as the importance of a clear and transparent explanation of the service. We had speculated earlier that a gallery of previous repair examples could be excellent for building trust in the service, but Billie's user journey map exacerbated this further.

User Jo	ourney Map - Billio	2			
Phase of the journey	Step 1	Step 2	Step 3	Step 4	Step 5
Actions	Finds a complicated tear in one of her most beloved garmonts that requires a professional to repair	She goes online to see which repair shops that are in a close proximity while looking at customer feedback	She shows the damaged gamment to the clerk, when she arrives at the chop, and explains what she wants to be regarined. She asks if the store clerk can explain what specifically will be done in the porces of repairing the gamment to ensure professionalism	The store clerk appears to have Swedish as a second language and has a hard time going into detail on the repair process.	She decides to leave because the waan't conflortable in leaving her belowed garment without being oure that the result would turn out like the wants. This leads to just leaving the garment in her doset and not wanting it until the decides to try a different repair shop.
Touchpoints warsard the polaritaries become for a set of the polaritaries	Looking at the garment and noticing it's damaged	Checking reviews and looking at google maps to determine where the closest tailor, with the best customer reviews, is located	Shows the garment to the clerk and wanting the clerk to explain how the repair will be done	Finds out there is a language barrier and loses trust in the process as the clerk fail to explain the repair process	Leaving the shop and decides to just leave the garment in closet instead of repairing it
Thoughts Were unsuer thing? Over Pain	"This is going to be to hard to repair on my own"	"I need to find a place that is close by with good customer feedback"	*Maybe I will learn some interesting new technique from the clerk*	"I don't really trust the process that the derk is trying to explain to me"	"Why would I trust a service that can't explain the process to me with my garment?"
Feelings Houck B 4 alter field styl	Positivas	C	••	••	
	Mazike			9	
Pain points War a state of the War state ensurced	A beloved garment is damaged. Billie needs to find a way to repair it.	Locating a competent and trustworthy tailor	Needs to go physically to the store	Clerk is not able to explain the repair process to her in an understandable way	She postpones repair and garment lingers in her wardrobe without being worn. She needs to invest more time in order to find a competent tailor.
Opportunities	A service that facilitates repairing more complicated damage in garments. A learning platform that teaches individuals to repair more complicated damage in garments	Access to reviews of all tailors in close proximity to the user and sort all the tailors within a user specified range	To explain the whole process of the repair	To have multiple language explanations of the repair that is going to occur	Have a gallery of what repair services has been done previously. Before and after pictures of that with attached quotes of the customer that requested the service

Figure 4. User journey map - Billie (see in Figma)

#### User Journey Map - Lou

Lou's journey map also consists of five steps (see Figure 5), where the graph of his feelings moves quite similar to Billie's, from being relatively low because of him noticing the damage of the garment to being very high as he has looked up what could be done to repair the garment and then thinking that he described it well to the store clerk. It ends up with him not understanding the terminology the store clerk uses to tell him what will be done. Lou decides to trust the store clerk as he does not know much about this area, and because of his high degree

of agreeableness, he just accepts it. It ends up with Lou being charged more than he expected and feeling tricked by the store clerk. The design team observed quite a few opportunities where the most noteworthy is to have more straightforward explanations of the repair service, enabling everyone to understand what will happen to the garment. Furthermore, based on Lou's user journey map, the team discussed that perhaps it would add value to letting the customer decide what would happen to the garment if memoa decided it was too damaged to be repaired.

User Jo	ourney Map - <b>Lou</b>				
hase of the journey	Step 1	Step 2	Step 3	Step 4	Step 5
Actions htt close the sear con	Lou has a pair of pants that needs mending. Even though he has done some less complicated repairs on clothing on his own before, this task is beyond his knowledge and therefore he decides that a professional needs to take a look.	He asks a friend for a recommendation of a clothing repair shop in a close proximity and decides to go there on his lunch break	When he arrives, he explains the problem and what he wants to be repaired and how he wants it to look afterwards	The steme clerk explains what will be done in the report, but because of Loss limited Laportogoin (adding report and its agreeable nature, it markes him update cally lauked into down generating that the dark of latent in the Theij place, but decide is if hast. The clerk with the service and flowe the pair of peaks. The clerk says that the can pick up the pants in the days.	Two days later in picks up the parts and realizes that the clerk has doe more than discussed in the first piace - This has late to the cost of the tropic has vector-particip gettern hig and Lou lesis like he has been tricked - He as late to clerk, why they have mode more changes than agree upon beforehand and they answer that the changes were mooses
ouchpoints at part of the product/Servers user incession alon?	Loeking at the garment and noticing it's damaged	Ask a friend for recommendation Check on google for a close by shop	Showing the garment to the clerk and wanting the clerk to explain how the repair will be done	Trying to understand what the terminology means when the clerk explains the process	Has to argue with the clerk of what has happened and feels tricked
houghts at is the uses thinking? Data Pain	"This is going to be to hard to repair on my own"	"This place was recommended to me by one of my friends and is really close by"	"I think I explained the damage correctly. Hopefully I will understand the clerks explanation of the service he will provide"	"The clerk is using words that I don't understand, which make him sound smart. Maybe I should just trust him I guess"	"Why did I not ask more questions prior to leaving my pair of paints to this service? I am dumb"
	Peakine				
Feelings	Peories		e		
eclings • theore holes <sup>+</sup>	Petition		ee		<b>B</b>
eelings = + i to use hadret ain points = meret to out to use = meret	Negar A beloved garment is damaged Lou needs to find a way to repair it	Locating a competent and trustworthy failor	Weeds to go physically to the store	Low doesn't really understand the terminology that the clerk uses to explain the repair process	Germent has not been fixed the way Lou expected Lou becomes less likely to use a repair servic again

Figure 5. User journey map of Lou (see in Figma)

## **6 Prototype Iterations**

## **Modified UX Competitive Analysis**

To evaluate and compare the UX of the to-be-developed prototype against competitors, we conducted a modified UX Competitive Analysis (see UX competitive analysis). During the UX Competitive Analysis, we analysed different online repair services, such as Patagonia, AlterKnit, and Clothes Doctor. The latter competitors were provided to us by the stakeholder based on initial market research. We complemented this selection of competitors with the clothing brand, and therefore indirect competitor, Patagonia which is known for its strong reputation for sustainability. The main focus during the analysis was the home and service pages of the competitors. We observed several similarities between the services: they needed more transparency on the company and the people behind the repairs. They focused heavily on giving clear and precise information regarding the garment-sending process, which could otherwise be confusing. Furthermore, we found several interesting points in their request forms that we had yet to consider. One of those points was to create granularity in the service, where one option is to let the customer choose what will be done with the garment if the repair shop decides it can not be repaired. Another interesting point from their request form was that, specifically, AlterKnit had several questions for their customer such as if the garment has been recently cleaned or previously repaired, which we had yet to think about including in our request form before.

A modified UX Competitive Analysis allowed us to understand better how other related services have designed their home and service pages to get customers to trust their services. Additionally, the analysis made us understand what is currently missing in the market, and what could be improved.

## **Content Brainstorming**

To begin the design work, we conducted a brainstorming session to decide which components the service would include and what content they could include when the platform is finished. This was based on what we found on the competitive websites and what our stakeholders had stated in the project brief document. The purpose was to get an overview of the scope of the design work and to start setting priorities for the remaining project time. In this step, we realised that the complete website, including all pages and components, would be too big of a scope for us. Therefore, we discussed with our stakeholders and explained that we would narrow down the scope and focus on the homepage, quick guide, and the actual service page to request a repair. This allowed us to dive deeper into the design of what we saw as the most important elements in the case of showing transparency and trust towards the user. The results from the brainstorming session were collected in *Miro* (see Figure 6 and *First sketches*).



Figure 6. Results from the brainstorming session (see in Miro)

### Initial co-design with the stakeholder

We conducted a co-design session to collaborate with the stakeholder creatively (see Figure 7). We determined that there is value in involving the stakeholder in the early phases of the design practice. The session's goals included discovering and exploring, together with the stakeholder, opportunities for the first draft of the prototype. More specifically, we wanted to understand how we could design transparency elements in the prototype. We looked at what specific content each page should include and discussed how the process of requesting a repair could be explained transparently (see Figure 7). We used various methods, including "how might we"-questions regarding the more important questions of transparency elements, followed by brainstorming discussions on the specific content of the pages.



Figure 7. Results from the initial co-design session (see in Miro)

The results regarding increasing the transparency of the service included adding customer reviews or testimonials, an image gallery of previous repair work, and presenting the pricing and duration clearly during the process of requesting a repair. Outcomes related to the usability of the repair request included adding step-by-step instructions both on the home page and before the request is carried out to ensure that the user understands and knows what to expect.

### First iteration - Medium-Fidelity prototype

#### Low-fidelity website flow

Based on the brainstorming and co-design sessions, we created a low-fidelity website flow visualisation to understand which pages we would need to design for the prototype and what content they should contain (see Figure 8). Each page contains a button to navigate the user to the next corresponding page. The arrows illustrate the navigation flow. The website flow served as a design aid and formed the basis for the first draft of the prototype. A more in-depth data flow diagram will be presented later (see *Data Flow diagram*).



Figure 8. Low-fidelity Website Flow

#### Medium-fidelity prototype

The prototype was created in the design program *Figma* which allows high-fidelity and interactive prototyping (see Figure 9). Since memoa did not yet have a web presence, we started designing the prototype from scratch. The prototype design only focused on the content, basic UI components and flow. The visual identity was not considered at this stage.



Figure 9. Medium-fidelity Prototype

#### Co-design with stakeholders regarding medium-fidelity prototype

After we designed a medium-fidelity prototype, it was time to discuss what we had constructed with the stakeholder to get feedback and further input. More specifically, we wanted input on the website's overall structure: if we missed something crucial or the general feeling that memoa intends to portray to the end-user. We got excellent feedback from the stakeholder; some required user information we added in the request form was not relevant, and the stakeholder explained, for example, that he wanted to have clickable options in the service menu to cut the time for the end-user to request a repair. There were also discussions on how we could facilitate the process of uploading photos of and visualise better how the end-user would photograph their garment in the best way. Our prototype was reiterated based on this co-design session, and the next step was to plan and conduct usability tests on that reiteration.

### Second iteration - High-Fidelity prototype

#### Usability testing

When the first draft of the high-fidelity prototype was completed, we recruited two people for the moderated usability test, which aimed to test the prototype's usability and how we could provide transparency and thereby increase the user's trust in the service itself. The usability test was conducted with the help of a *think aloud* method, giving the users tasks to complete while they speak aloud about their general opinions. We ended the usability test with a couple of follow-up questions regarding their overall experience of the transparency of the service, if they think something is missing or if they thought something was more challenging or confusing than it should be. The participants (see Table 3) in the usability test were ages 23 and 24, and both live in Sweden. The usability test was conducted via *Zoom*, a video communication tool. Considering we were testing the homepage and the service page regarding transparency and trust, it was essential to understand how a portion of the target group interprets our design from their different perspectives.

Participant	Occupation	Relevant demographics	Other relevant characteristics
P1	Student	Male, age 23	Swedish, Location: Sweden
P2	Student	Female, age 24	Swedish, Location: Sweden

Table 3. Usability Test Participant Information

As mentioned, after the participants completed the tasks we conducted a follow-up interview for each participant to get a deeper understanding of how the users think and feel. During the follow-up interviews, we asked about the participant's perception of trust and general thoughts about the user experience. We had to be agile during the follow-up interviews because the participants had different backgrounds and analytical problem-solving capabilities. The primary follow-up interview questions were:

- 1. Would you trust this service in sending in a garment you like?
- 2. What do you feel is missing in the pages to increase your trust in the service?
- 3. Do you feel something must be clarified, misplaced or even completely wrong in the pages?
- 4. Is the process of requesting a repair explained clearly?

#### **Affinity diagram**

After the usability tests, we analysed the data through an *affinity diagram* (see Figure 10). The affinity diagram allowed us to clarify the patterns and valuable insights from the quotes we gathered through the usability tests and the follow-up interview. We started by writing down points of interest based on our interview notes to understand the data. The pink Post-it notes represent P1, while the green represent P2. After writing down the points of interest, we began to group and, in some cases, even reformulate Post-it notes to incorporate very similar Post-it notes. After grouping the Post-it notes, we named the groups and made several new iterations of how the Post-it notes could be grouped. The main organised groups we were able to formulate are as follows: *Confusion, general usability,* and *transparency/trust*. Furthermore, under each of the main groups, we developed sub-groups. General usability had two sub-groups which were *user solutions* and *what worked*. Transparency and Trust have the sub-group visualising information, which has two sub-groups; *content* and *usability*. The primary group, confusion, has three sub-groups: *Price estimation, interaction,* and *request description*. Each group helped us to get a better and more nuanced understanding of how the users interacted with the application.



Figure 10. Affinity diagram (see in Miro)

#### Findings from the affinity diagram

The insights of the theme *confusion* - *Request description* indicated that they needed clarification on how detailed they should phrase themselves when asked to fill in the garment description (see Figure 11). We learned that we need to be more apparent to the user about what we expect them to fill in and how precise the definition should be. Another finding relating to this was that we could be more clear about this using an *input guide* which shows the customer a picture and a text of how the garment of the photograph would be described. For example, when the user is asked to fill in the material of the garment, the *input guide* could show an image of an example garment out of a certain material, and the input for that field could be "Mohair".

Describe what needs to be repaired \* (i)



Figure 11. Request Description

The theme *Confusion - User price estimation* indicated that it needed to be clearly explained that the price on the checkout page was a price estimation (see Figure 12). Both of the participants thought it was a definite amount which would not possibly change. This has to be further explained, and the design needs to be more clearly provided what the price estimation is based on. A solution could be to have a read more button which goes through exactly how memoa came up with that exact price estimation. Also, we need to clearly describe what happens if the price changes during the process.

Estimated Total Price	550 kr
Estimated Duration	8-14 days
Prices and duration are provisional and may of we have reveiced your item(s). We may asses status is more severe.	hange when is that the item

Figure 12. Price Estimation

General usability - What worked was a theme where we learned that the time required to complete the request form should not be longer. However, if something is further evaluated and investigated, it could become even more optimised and reduced. We also learned that the process was clear and easily understandable, and the process was generally perceived as adequate by the participants.

*General usability - User solution* was a theme in which we learned that users value an interactive progress bar (see Figure 13) that they could use to aid them in navigating through the request process. According to the participants, an interactive progress bar would make them fill out the form faster and enable them to review their request process easily. They wanted the progress bar to be interactive so that it would be clickable to go back to specific pages by clicking on the

page directly on the progress bar and not being required to scroll down on the page and press back for each page.



Figure 13. Interactive Progress Bar

Based on the *transparency/trust* theme, we learned that our attempt to increase transparency and trust was quite successful because when asked, both the participants said they would trust memoa with their garments. This was mainly due to the recognisable design elements typically used in online shops, which convey a sense of familiarity and professionalism. Still, both would start with more straightforward repairs on garments that are not very valuable to the participants, increasing the complexity and value based on their growing trust in the service.

*Transparency/trust* - *Visualising information* was a theme which made the design team further understand that the participants value interactive content. They wanted the *How it Works* homepage section (see Figure 14) to be interactive in case they needed more information. Still, they wanted to be able to choose exactly what information they wanted to focus on. The participants explained that they wanted to get a pop-up with additional texts, and having videos on those pages would also be beneficial to make it more understandable and easier to digest.



#### 1. Garment details

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#### 2. Submit photos

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#### 3. Review order

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#### 4. Confirm shipping method

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#### 5. Done!

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Request repair

Figure 14. How it works section of the homepage

## 7 Results - Final prototype

## Data flow diagram

To analyse the design structure, we created a data flow diagram. It maps out the flow of the information process and illustrates details of the functions and data flows. (Lucid, n.d) The chart utilises different symbols and shapes to visualise data inputs, outputs, and various options for the user to choose from and routes between each data node.

In our data flow diagram, we visualised the nodes using four different shapes, and we visualised the data flow using arrows to connect the nodes. The light blue rectangles indicate that a page has been prompted to be loaded, the dark blue rectangles indicate possible interactions, the green triangles indicate conditional locked interactions, and the pink diamond shape visualises decisions the user has to make. Usually, the user can choose between several possible interactions. We divided our flow diagram into 13 sections (see Figure 15).



Figure 15. Flow Diagram (see in <u>Miro</u>)

The user journey begins on the homepage, where they can click and expand different text boxes. Once they feel prepared, they can choose to load the pre-request page. Sections two to five follow a similar pattern, allowing users to navigate forward or backwards in the data flow. In the sixth section, named *item details*, users encounter multiple text boxes that must be filled out. Here, they must indicate whether the item has been recently washed. If users encounter any confusion or need further assistance, they can press the *input guide* button, which directs them to a page that offers guidance on the process. Upon completing all necessary information, the user can proceed to the eighth section, the *upload first image* page.

Within this section, users enter a four-layered loop that prompts them to upload images of the item from various perspectives. The user has the option to review previously uploaded images at any time. Once four pictures have been uploaded. The user can continue to the ninth section, titled *Yes/no page*. Here, the user is presented with multiple true/false questions that need to be answered. Similar to previous sections, users can navigate back if needed. When the user feels that they are ready and have correctly responded to the questions, they can click the *review your item* button, which loads the tenth section, the *repair order review* page.

Within the repair order review page, the user has four possible interactions. Clicking on *How will I know my price has changed*? or *How is my price determined*? displays different explanatory text boxes. Clicking *Add another garment* directs the user back to the sixth section. Finally, clicking *Proceed to checkout* loads the eleventh section, referred to as the *order checkout* page. The order checkout page offers four interactions: *How will I know my price has changed*? (same as in previous sections), accepting the terms of service, going back to the previous section, or confirming the order, which loads the twelfth section known as the *confirmation* page.

The confirmation page provides a single interaction: *view order details*, which leads to the final section, called *your order* page. The *your order* page offers three possible interactions: *How will I know my price has changed*? (same as in previous sections), *download shipping label* (not functional in the prototype), and *return to the homepage* which loads the first section *homepage*, again.

## **Visual identity**

In the final prototype iteration in this project, we added a rough visual identity proposal for the website. The colours were given by the stakeholder. To create a clean and professional look for the website, we decided to mostly stick with a classic black and white and use the given colours as accent colours instead. A white background makes the content stand out, which is important for memoa, especially at the beginning, as memoa will only have new users who are unfamiliar with how the service works. However, the accent colors shall create a sense of excitement, modernity and playfulness.

### A closer look at the Prototype

#### Homepage

The final prototype represents a mobile web version of memoa and can be accessed here. When the user accesses memoa's website in the browser, they arrive at the homepage, which describes what memoa's mission is and how their repair service works. Memoa, as a new service, will only have new customers. Hence. the step-by-step explanation intends to familiarise users with the service and inform them what their effort would be to use it. The How it Works section follows a Call-to-action button that forwards the user to create a repair order (see Figure 16). The button was also added in the header of the website so that the user can access the button at any time. Furthermore. the homepage contains previous customer reviews and work examples to increase the trust and credibility of the service (see Figure 17).



Figure 16. Homepage



Figure 17. Homepage

#### Quick Guide

Before the user starts to create an order, they go through the quick guide. The quick guide provides the user with additional information regarding the service that is important to know (see Figure 18). Secondly, it is clarified that the costs of the repair are estimates and may change if the damage is more severe than assessed (see Figure 19). Thirdly, it is pointed out that the user should wash their item(s) before handing it in due to hygiene reasons (see Figure 20). Lastly, the user will be informed of the possibility of having the item recycled by memoa with their consent if it is beyond repair (see Figure 21). The user can choose to skip the quick guide and proceed right away with creating a repair order.



Figure 18. Quick Guide



Figure 19. Quick Guide



Figure 20. Quick Guide



Figure 21. Quick Guide

#### **Repair Request**

The ordering process is based on a standard online shopping process. It consists of four main steps: *Repair Details, Order Review, Checkout* and *Order Confirmation*. The process scope is displayed to the user using a progress bar at the top of each page, informing them of their current step.

#### **Repair Details**

In the first step, the user provides information about the item they want to let repair. This step is divided into three substeps: Item details, adding photos and further questions about the repair. First, the user enters the type of item, material, the repair area, a detailed description of the damage to the item and if it has been repaired before (see Figure 22). Following the usability testing, an input guide was added to give the user a hand on how the form should be filled out if needed (see Figure 23). When the user clicks on the guide, they can see an example item and how the form was filled in with the relevant details.

emoa		memoa	Ö
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Figure 23. Input Guide

After the user has provided the details about the item, the user is forwarded to add photos of the item. The user can take a photo directly using the built-in phone camera integrated into the website via an API (not functional in the prototype) or upload a photo from their device library (see Figure 24 and 25). For memoa to make an accurate price estimate, the user is asked to add a photo of the front and back of the item and close-up photos of the repair area. The user can delete uploaded photos and retake or upload photos.

To complete the repair details, the user must provide further information about the item to facilitate the repair process for memoa and protect them from possible customer actions or complaints (see Figure 26). Firstly, the user must confirm that the item has been washed before sending it in to comply with hygiene standards. Secondly, the user can agree that alternative colours or fabrics can be used for the repair if the right colours or fabrics are unavailable. Thirdly, the user must confirm that all item issues have been listed. Not listed issues will not be repaired by memoa. Finally, the user can choose what memoa should do with their item in case it is beyond repair. The user has the option of having the item returned to them for a delivery fee or leaving it with memoa for recycling.



Figure 24. Upload Photos

Figure 25. Upload Photos

Figure 26. Repair Questions

#### **Review Order**

In the next step, the user can review their order and receives a provisional repair cost estimate (see Figure 27). Moreover, the user can edit the information they provided or delete the item to cancel the order. If the user is satisfied with their input, they can add another item to their order or proceed to checkout. In case of adding another item, the user is taken back to the previous step, where they go through the earlier described process again. However, this feature is not functional in the prototype, so the corresponding button was designed as "disabled".



Figure 27. Order Review

#### Checkout

In the checkout step, the user's order is once again summarised (see Figure 28). The user can choose their preferred shipping method for sending their order to memoa, a delivery method for receiving their order back, and various options of their preferred payment methods. Before finally checking out, the user needs to agree to memoa's terms and conditions.



Figure 28. Checkout

#### **Order Confirmation**

In the final step, the user receives an order confirmation and instructions on how to pack their order (see Figure 29). They are being informed that they also received а confirmation and the shipping label for their parcel via mail. They can also view their order details on the website and download the shipping label (see Figure 30).



Figure 30. Order Details

## **8 Further Recommendations**

After conducting multilayered UX research, including semi-structured interviews, a modified UX competitive analysis, two co-design sessions and usability tests, we turned everything we learned into a prototype consisting of a homepage and a service page. Nevertheless, as this was a first approach to user research and prototyping for memoa, we do have a couple of recommendations for how to further implement and improve the service of memoa that we would like to share.

In the usability tests and during one of the co-design sessions, it was brought up that the price estimation could become more transparent to make it interactive during the request process. One way could be to show the price estimation throughout the process and synchronise it with when the end-user changes or adds parameters in the request form. In addition, one could provide the synchronised price estimate with an animation when it is increased or decreased. When the number above the price estimate increases, a colour appears, and when it decreases, the same thing happens, only in a different colour. This is just a hypothesis, and the function would have to be tested in itself, possibly with the help of a quantitative approach of an A/B usability test, comparing two different alternatives.

Additionally, the prototype has to be tested after our final prototype iteration as it has to be validated if our changes increase or decrease usability, transparency, and trust. Secondly, the remaining elements not integrated with the prototype should be implemented and tested. During all of the usability tests, we relied heavily on placeholder texts. However, these should be replaced and reiterated using empirical data to make the textboxes increase the user's intrinsic trust in the service. Lastly, there are several pages of the service that we decided not to design during this project based on the time scope we were assigned. To show that they exist, some of these pages were instead added as placeholder elements on the homepage, but the call-to-action would not lead to a different page with more information. This would include designing a gallery with pictures showing memoa's previous work, customer testimonials and reviews, a customer profile page with order history and the possibility to track current repair statuses, an FAQ page, and a page presenting the team behind memoa.

## 9 Limitations

When the project was concluded, we discussed and reflected upon what the research limitations were and how they might have impacted the outcomes of the user research and the prototype development. Since memoa had not yet positioned itself in the market and had not yet determined what the service should all include, it was difficult at times for us to get started and what to focus on. This had an impact on the project in that we often had to make assumptions and speculations about what the service might need. Secondly, we had fewer participants than we would have liked to include in our semi-structured interviews. This led us not to reach data saturation which means that some crucial points or perspectives could have been left out during our data analysis. Lastly, during the usability testing, we had very poor responses from people to participate which led us only to have two participants leading us not to reach data saturation in this area either.

## **10 Conclusion**

In conclusion, this study was a rewarding experience that gave us valuable knowledge regarding user research, the impact of fast fashion and managing our and the stakeholder's expectations. Our goal was to design for transparency and trust in a process that redirects from physical interaction to an online experience. The results from the various data analysis indicate that the stakeholders, and the users we tested the prototype with, perceived that we managed to design for translucency, empowerment and competence - which were all our pillar stones of transparency. Nevertheless, we suggest that memoa continues with empirically based user research to validate our last iteration of the prototype and investigate even further how they could continue to design to increase the perceived transparency and trust for the customer.

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## Appendix

## Interview guide

#### Picture guided questions - for each picture (1-3)

- Imagine if this garment would originally be worth 5'000 SEK. What would you do if the garment was in the state of the picture?
  - What if the garment had a sentimental value of some kind?
- Would your decision change in any way if the garment would originally be worth 100 SEK instead?
  - What if the garment had a sentimental value of some kind?

#### Environment

- If you imagine a very environmentally conscious person, what do they do to act environmentally conscious according to you?
- In what way are you [x] environmentally conscious?
- Are there circumstances where you are not environmentally conscious?
- Are there circumstances where you are particularly environmentally conscious?

#### Main questions

- Do you generally shop for clothes online or in-store?
  - If you generally do not shop for clothes online, what demotivates you from buying clothes online?
  - If you generally shop for clothes online, do you ever intentionally buy more clothes than you need with the intention of returning some of them?
    - $\circ~$  Do you think the experience of returning clothes to online shops could be improved?
- Have you ever used a paid service in order to repair clothing?
  - If no, why not?
    - What would motivate you to use a paid service in order to repair clothing?
  - How did you find the store that you chose to repair your clothing?
    - Did you look at any prior customer feedback of that store before choosing it?
  - Tell us about the last time you used a paid service to repair an item of clothing.
    - Have you ever had a negative experience with a paid service for repairing an item of clothing?
      - How could that experience have been improved from your point of view?
    - Have you ever had a positive experience with a paid service for repairing an item of clothing?
      - In what way was it positive? Could you imagine how it could have been even more positive?
    - $\circ$   $\:$  Do you think the price-performance ratio was reasonable?
  - After you used the service, did you fill out a feedback form on the store/service?
    - If no, what do you think would motivate you to fill out a feedback form the next time you repair clothing?
    - If yes, what motivated you to fill out the feedback form?
- If there was an online textile repair service available, would you use it and what would *motivate* you to use it?
- If there was an online textile repair service available, would you use it, and what would *demotivate* you to use it?
- Do you have a garment that you have a special (sentimental) connection to?
  - Would you feel comfortable handing in this garment to repair service?
    - Would you feel more or less comfortable handing in this garment to an online repair service?

## **UX** Competitive Analysis





Request portal - Contains two steps of a form and a confirmation of the request with information that the user can send in their items and the company will get back to the user with more information

miro



Step-by-step guide and information on the process and information that some repairs will not be able to be fixed and what options the consumers have in that case

miro



Progress bar in repair portal and checkout overview

miro

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Repair - Issue Not Listed

Drop-down selection over different repairs

miro

## First sketches

